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A brief 6-page summary of enrollment trends in engineering, both nationally and at the University of Wisconsin and the Wisconsin State College and Institute of Technology at Platteville, over the past 7 years, also a compilation of the degrees granted in engineering since 1956.

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NATIONAL AND STATE TRENDS IN ENGINEERING ENROLLMENTS, 1956-1962

The Joint Staff Engineering Improvement Committee has presented the minutes of its annual meeting of April 27, 1963 at Stout State College with statistical data concerning enrollments in engineering at the University of Wisconsin and in pre-engineering at the Wisconsin State Colleges. During this meeting the problem of declining enrollments in the field of engineering, a question of serious national concern, was discussed in detail, and suggestions were made about how this trend might be reversed in the State of Wisconsin. In conjunction with the deliberations of the Joint Staff Engineering Improvement Committee, the Joint Staff felt that it would be valuable for the Coordinating Committee to have a summary of enrollment trends in engineering, both nationally and at the University of Wisconsin and Wisconsin State College and Institute of Technology at Platteville, over the past seven years as well as a compilation of the degrees granted in engineering since 1956.

From a peak in engineering enrollments in 1957-58, there has been a decline in undergraduates studying in this field both at the national level and at the campuses of the University of Wisconsin. This decrease in the number of undergraduates has led educators in engineering and professional engineers to develop intensive programs designed to inform qualified young persons about engineering careers.

The decline in undergraduate engineering enrollments continued on both a national level as well as at the University of Wisconsin after 1961, but the rate

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of decline has slowed considerably for the nation as a whole. This has not been true at the University.

The College of Engineering has advanced several possible explanations for the more rapid decline in undergraduate enrollments here than at the national level.

First, the engineering curricula at the University of Wisconsin have more rigid requirements in mathematics than in many engineering schools in the country and most such schools in the Midwest. This has tended to discourage students who do not have strong mathematics backgrounds in high school from attending the University's College of Engineering.

Much work has been accomplished by the College of Engineering in upgrading mathematics instruction in Wisconsin high schools. In cooperation with high school instructors and counselors since 1954 this mathematics improvement program has been designed to develop in the high school elementary mathematics skills required for engineering study so that engineering students will not be deficient when they enter a professional engineering curriculum. By September of 1959 each entering freshman in the College of Engineering at the University of Wisconsin was required to have four years of high school mathematics and to pass a mathematics placement examination to be admitted without deficiency.

Furthermore, because of increased facilities, staff, and programs at the University Centers and the Wisconsin State Colleges more engineering students have begun their college course in local areas, transferring into professional

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engineering curricula at the University in the upper class years. The Joint Staff Engineering Improvement Committee has, of course, been of valuable assistance in alleviating problems of transfer from the Wisconsin State Colleges to the University.

Finally, College of Engineering officials note the establishment of new engineering schools in the United States which grant engineering and associate degrees and are not so demanding as the University and which therefore are attracting the less-qualified students. Higher retention rates at the University's College of Engineering would seem to support this belief. Officials at the University also indicated that as of July 5, 1963 advanced registration of freshmen in engineering on the Madison campus was slightly higher than the freshman enrollments of last fall, and they are hopeful that a further decline will not occur in September of 1963. A continuing increase in engineering enrollments is also expected as a result of larger numbers of high school graduates in the years ahead. Moreover, beginning in the fall of 1963-64, the University of Wisconsin-Milwaukee will inaugurate its first, formal cooperative program for engineers with a group of from six to ten students from Allis-Chalmers Corporation. This professional "work-study" plan has been available prior to this time on an informal basis and is of real benefit to both the student and the concern with which he is associated.

Two professional engineering curricula are offered at the Wisconsin State College and Institute of Technology in Platteville, civil and mining engineering, for the bachelor's degree. Reversing the national trend, engineering enrollments

at Plateville have shown a continual increase since 1956.

In spite of substantial decreases in the number of undergraduates studying engineering there has been a consistent yearly increase in graduate students pursuing further study toward the master's and doctor's degrees or professional certification in engineering. Nationally, enrollments in such graduate programs were at an all-time high in 1962-63. Graduate engineering enrollments at the University of Wisconsin have shown a similar increase, although there has been a decline in two of the past three years. The peak in graduate enrollments at the University thus came in 1959-60 instead of last year because of substantial program changes in Milwaukee after that school year. Undergraduate and graduate engineering enrollments nationally and at the University of Wisconsin and Wisconsin State College and Institute of Technology are shown in Table I. The groups of statistics include day and evening, full-time and part-time degree-credit students. The 8 University Centers offer pre-engineering courses and students enrolled who indicated an engineering major are, therefore, included in the total University figures.

There has also been a decline in the number of bachelor's degrees awarded in engineering the past three years, both nationally and at the University of Wisconsin (Table II). The peak year in this period was 1958-59, and since that time the lower enrollments in undergraduate engineering programs have been reflectedin smaller number of first-level degrees awarded. At the Wisconsin State College and Institute of Technology in Platteville, increased undergraduate enrollments have led to an increase in the number of degrees awarded since 1956.

On the graduate level, the increase in the number of graduate students has led to a correspondingly higher number of master's and doctor's degrees since

1956, both at the University of Wisconsin and nationally. Undergraduate and graduate engineering degrees awarded since 1956 are shown in Table II. A master's degree program at the Milwaukee campus is included in the University totals, but Milwaukee does not yet offer a full four-year bachelor's degree program in engineering, nor does it offer the doctorate.

TABLE I
Engineering Enrollments, 1956-1962*

Undergraduates

School Year	Number WSCIT	Number U.W.	Number National	Percent Change from Previous Year WSCIT	Percent Change from Previous Year U.W.	Percent Change from Previous Year National
1956-57	278	4,028	251,121	------	-----	------
1957-58	316	4,105	268,761	+13.7	+1.9	+7.0
1958-59	328	3,969	256,779	+ 3.8	-3.3	-4.5
1959-60	332	3,778	242,992	+ 1.2	-4.8	-5.4
1960-61	361	3,637	234,190	+ 8.7	-3.8	-3.6
1961-62	383	3,512	232,104	+ 6.1	-3.4	-0.9
1962-63	404	3,363	230,730	+ 5.5	-4.2	-0.6
Graduates						
1956-57		375	25,931		-----	-----
1957-58		353	28,316		- 5.9	+9.2
1958-59		489	32,901		+38.5	+16.2
1959-60		606	35,356		+23.9	+7.5
1960-61		557	37,660		- 8.1	+6.5
1961-62		584	40,673		+ 4.8	+8.0
1962-63		553	44,599		- 5.3	+9.7

* Figures are based upon the reports of engineering enrollments submitted by the institutions to the U.S. Office of Education. They may vary somewhat from other enrollment reports because of differences in definitions.

ENGINEERING DEGREES AWARDED, 1956-61

Bachelor's Degrees

School Year	Number WSCIT	Number U.W.	Number National	Percent Change from Previous Year WSCIT	Percent Change from Previous Year U.W.	Percent Change from Previous Year National
1956-57	20	440	31,211	--	--	--
1957-58	34	499	35,332	+70.0	+13.4	+13.2
1958-59	46	546	38,134	+35.3	+ 9.4	+ 7.9
1959-60	58	524	37,808	+26.0	- 4.0	- 0.9
1960-61	59	500	35,860	+ 1.7	- 4.6	- 5.2
1961-62	59	480	34,735	0.0	- 4.0	- 3.1

Master's Degrees and Professional Certificates

School Year	Number U.W.	Number National	Percent Change from Previous Year U.W.	Percent Change from Previous Year National
1956-57	99	5,232	--	--
1957-58	76	5,788	-23.2	+10.6
1958-59	103	6,753	+35.5	+16.7
1959-60	129	7,159	+25.2	+ 6.0
1960-61	120	7,977	- 7.0	+11.4
1961-62	140	8,748	+16.7	+ 9.7

Doctor's Degrees

School Year	Number U.W.	Number National	Percent Change from Previous Year U.W.	Percent Change from Previous Year National
1956-57	22	596	--	--
1957-58	21	647	- 4.5	+ 8.6
1958-59	28	714	+33.3	+10.4
1959-60	20	786	-28.6	+10.1
1960-61	39	943	+95.0	+20.0
1961-62	41	1,207	+ 5.1	+28.0